

**From "Small Animal Ophthalmology:
A Problem-Oriented Approach" by Dr. Robert L. Peiffer, Jr. (1989):**

"Microphthalmos is the presence of an abnormal, small globe resulting from retarded or aberrant development of the optic vesicle. Other cystic structures may be present. It is usually associated with multiple congenital ocular anomalies including colobomata, retinal nonattachment, cataracts, and persistent pupillary membranes with consequent visual impairment. Nanophthalmos is uncomplicated microphthalmos, the presence of a small but otherwise normal globe. These conditions may occur unilaterally or bilaterally. Microphthalmos and nanophthalmos are relatively common in the dog.

Etiologies

Vitamin A deficiency

Hereditary causes are common in several canine breeds, including the Collie breeds, Doberman Pinscher, Australian Shepherd Dog, and Miniature Schnauzer.

Toxic causes (teratogenic agents) of anophthalmos (complete absence of globe) and/or microphthalmos include griseofulvin in the cat.

Idiopathic and/or spontaneous causes of microphthalmos account for many cases seen in practice.

Clinical Findings

Anophthalmic and grossly microphthalmic eyes should present no problems in recognition. Difficulties, however, do arise with very mild cases of microphthalmos or nanophthalmos in which the globe is only slightly reduced in size. In such cases the following features may be of help in comparing a unilaterally affected eye with its normal companion eye:

The affected eye may show slight enophthalmos. Compare the two eyes by looking down vertically from above the animal's head.

The third eyelid may be slightly more prominent on the affected side.

The affected globe may show more exposed sclera and there may be microcornea with an abnormal limbus.

Other ocular defects may be present, including cataract, retinal detachment, and coloboma.

Differential Diagnosis

In phthisis bulbi, the globe is grossly shrunken as a result of chronic glaucoma, inflammation, or trauma destroying the ciliary body. Microphthalmos is seen in young animals and there is no history or other evidence of antecedent ocular disease or trauma. Microphthalmic eyes do not tend to have the shrunken, wrinkled appearance of phthisical globes.

Prognosis and Treatment

Microphthalmos cannot be treated, and the prognosis for the animal depends on the individual case: the severity of the lesion and degree of visual impairment, whether the lesion is unilateral or bilateral, and the use for which the animal is required. In

young companion animals with bilateral severe disease, euthanasia may be the preferred alternative. Less severe cases may lead a reasonable life provided other ocular anomalies (cataracts) do not progress, but their use for future breeding should be avoided, particularly in those breeds in which the condition is known to be hereditary. Chronic conjunctivitis associated with tear retention by an enlarged lacrimal lake may be managed with daily irrigation and topical antibiotics or, in severe cases, by enucleation."